

Applicant : Alan Phillips
Serial No. : 10/626,842
Filed : July 23, 2003
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Attorney Docket No. P-JK-01496

Amendments to the Drawings

Please replace sheet 2 of the drawings with the attached replacement sheet. Attached are a version with a redline markup to show changes and a clean copy. Fig. 2 has been amended to add reference numeral 111 that refers to the bore in the chuck 110. No new matter has been added.

REMARKS

Claims 1-16 and 54-70 are pending, with claims 1, 9, 16, 59, and 65 being independent. Claims 1, 5, 9, 12-14, and 16 have been amended, claims 54-70 have been added, and claims 17-53 have been cancelled without prejudice. Applicants respectfully request reconsideration in light of these amendments and the following remarks.

Drawings

The drawings have been objected to as failing to comply with 37 C.F.R. § 1.83(a). For at least the following reasons, Applicants respectfully request withdrawal of these objections.

The drawings have been objected to for failure to show the claimed “bore.” Applicants respectfully point out that the drawings and specification, as filed, show and describe a bore in the chuck 110. To clarify, the drawings and specification have been amended to indicate the bore by reference numeral 111. No new matter has been added.

The drawings also have been objected to for failure to show the claimed bore being “tapered.” Although Applicants believe that the disclosure is sufficient to support this feature, in order to expedite prosecution, Applicants have cancelled this feature from the claims.

For at least the foregoing reasons, Applicants request withdrawal of the drawing objections.

35 U.S.C. § 112 Rejections

Claims 4, 12, and 21 have been rejected under 35 U.S.C. § 112, first paragraph for failure to comply with the enablement requirement. For at least the following reasons, Applicants request withdrawal of these rejections.

The Office Action states that it is not clear “what Applicant considers ‘a first end and a second end’ of the tool bit shank.” Applicants submit that the specification, drawings, and claims make clear that the “first end” refers to the portion of the shank that is coupled to the cutting head and the “second end” refers to the portion of the shank that is received in the chuck.

The Office Action also states that it is not clear “how the shank and cutting head are ‘coupled.’” Applicants submit that the claims are not limited to any way of coupling the shank and the cutting head. Nonetheless, the shank and cutting head can be coupled by any means known in the art, including, for example, by being made integral with one another as shown in Fig. 2.

The Office Action also states that it is not clear “what Applicant considers the ‘bore.’” As explained above in response to the drawing objection, the drawings and specification show and describe the bore 111 in the chuck 110.

The Examiner also states that it is not clear “where the ‘bore is tapered for receiving the second end of the shank.’” Although Applicants submit that the disclosure provides support for this feature, to expedite prosecution, this feature has been cancelled from the claims.

For at least the foregoing reasons, Applicants respectfully request withdrawal of these rejections.

35 U.S.C. §§ 102(b) Weaver Rejection

Claims 9-11 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Weaver (U.S. Patent No. 5,826,888). For at least the following reasons, Applicants respectfully request withdrawal of this rejection.

Independent claim 9 relates to a router bit holding assembly for receiving a bit including a cutting head and a shank, and recites, among other things, a “collar sliding axially between a first position and a second position, wherein when the collar is moved to the first position the collar is configured to hold the ball in engagement with the annular groove [of the shank] to at least substantially prevent rotation of the shank within the bore when the chuck is rotated.” Weaver fails to describe at least these features of claim 9.

Weaver describes a quick release chuck device 10 that includes a body member 12 defining a longitudinal recess 22. Recess 22 receives a coiled spring 56, which defines an internal bore 57. A sleeve member 42 is rotatably mounted on body member 12 and can be rotated to tighten spring 56. Sleeve member 42 has a toothed ratchet face

46 that interacts with a toothed ratchet surface 40 on body member 12. When a tool shank 82 is received in internal bore 57, sleeve member 42 is moved axially to disengage ratchet face 46 from ratchet surface 40, and sleeve member 42 is rotated to tighten spring 56 around tool shank 82 to hold tool shank 82 in bore 57 while the tool shank 82 is being operated. In an embodiment shown in Figs. 8 and 9, an insert member 100 disposed between body member 12 and tool shank 82 includes a plurality of balls 108 that engage splines 112 to prevent over-torquing of spring 56.

First, as acknowledged on page 6 of the Office Action, Weaver fails to show that balls 108 are able to be “in engagement with the annular groove” of a shank, as recited in claim 9. Rather, Weaver shows balls 108 in engagement with a shank having no annular groove.

Second, Weaver fails to describe a “collar sliding axially between a first position and a second position, wherein when the collar is moved to the first position the collar is configured to hold the ball in engagement” with the shank, as recited in claim 9. In Weaver, axial movement of sleeve member 42 (which the Office Action equates to the claimed collar) does not hold the balls 108 in engagement with the shank 82. Rather, sleeve member 42 is axially moveable to disengage ratchet face 46 from ratchet surface 40.

Third, Weaver fails to describe that the balls “at least substantially prevent rotation of the shank within the bore when the chuck is rotated,” as recited in claim 9. In Weaver, spring 56, not balls 108, prevent rotation of the shank 82 in the bore 57 when the chuck device 10 is rotated. The balls 108, on the other hand, prevent over-torquing of spring 56.

For at least the foregoing reasons, claim 9, and its dependent claims 10-11, are not anticipated by Weaver.

35 U.S.C. §§ 102(b) Han Rejection

Claims 9-13 and 15 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Han (U.S. Patent No. 5,820,135). For at least the following reasons, Applicants respectfully request withdrawal of this rejection.

Independent claim 9 relates to a router bit holding assembly for receiving a bit including a cutting head and a shank, and recites, among other things, a “collar sliding axially between a first position and a second position, wherein when the collar is moved to the first position the collar is configured to hold the ball in engagement with the annular groove [of the shank] to at least substantially prevent rotation of the shank within the bore when the chuck is rotated.” Han fails to describe at least these features of claim 9.

Han describes a chuck having a body member 25 defining an axial recess 20. Received in axial recess 20 is an inner sleeve member 28 that has first and second axially extending slits 44, 46, which render sleeve 28 diametrically and circumferentially flexible. Body member 25 defines tapered pockets 24, 25 in communication with axial recess 20. Tapered pockets 24, 25 receive retractable gripping elements 37, 87. Body member 25 is axially moveable relative to sleeve member 28 to bring gripping elements 37, 87 into engagement with the tool shank 23 to hold the tool within the chuck against the force of gravity when the tool is not under load. The chuck also includes a cam member 60 that holds the tool shank 23 in the chuck when the tool shank 23 is operated and rotated under a load.

First, Han fails to describe a collar that “is configured to hold the ball in engagement with the annular groove” of a shank. Rather, Han shows a body member 25 (which the Office Action equates to the claimed collar) that brings a gripping element 87 (which the Office Action equates to the claimed ball) into engagement with a shank 23 having no annular groove.

Second, Han fails to describe a balls that “at least substantially prevent rotation of the shank within the bore when the chuck is rotated,” as recited in independent claim 9. In Han, the gripping element 87 provides only enough “friction to hold the tool within the chuck against the force of gravity and without rotation relative to the chuck when the tool is not under load.” (Han at col. 11, lines 12-14). Han relies on a separate cam member to hold the tool in the chuck when the tool is being rotated. (Han at col. 12, lines 47-67).

For at least these reasons, independent claim 9, and its dependent claims 10-13 and 15, are not anticipated by Han.

35 U.S.C. §§ 102(b) Kouvelis Rejection

Claims 16 and 23 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Kouvelis (U.S. Patent No.4,818,157). Claim 23 has been cancelled, without prejudice. For at least the following reasons, Applicants respectfully request withdrawal of the rejection of claim 16.

Claim 16 relates to router bit and recites, among other things, the bit “having a slot configured to be engaged by a first engagement portion of a bit holding assembly of a router.” Kouvelis fails to describe at least this feature of claim 16. Kouvelis describes a drill bit 30 configured to be received in a driving aperture 18 of a collar 16 that is received in a chuck 12 of a rotary tool 14. Drill bit 30 includes a shaft 32 of square cross-section and a groove 34 adapted to receive one or more balls 20. Drill bit 30 (which the Office Action equates to the claimed router bit) does not have “a slot configured to be engaged by a first engagement portion of a bit holding assembly of a router,” as recited in claim 16. For at least these reasons, Kouvelis does not anticipate claim 16.

35 U.S.C. §§ 103(a) Weaver/Kouvelis Rejections

Claims 1-4, 6, 9-11, 16-19, 21, and 23 have been rejected under 35 U.S.C. § 103(a) as being obvious over Weaver in view of Kouvelis. Claims 17-19, 21, and 23 have been cancelled, without prejudice. For at least the following reasons, Applicants respectfully request withdrawal of the rejections of claims 1-4, 6, 9-11, and 16.

Independent claim 1, and its dependent claims 2-4 and 6, are patentable over Weaver and Kouvelis because these references do not describe or suggest all of claimed features and/or because there is no motivation to combine the references as suggested in the Office Action.

Claim 1 relates to a router bit system, and recites, among other things, “wherein when the collar is moved to the first position the collar is configured to hold the ball in engagement with the annular groove and when the collar is moved to the second position the collar is configured to allow the ball to be disengaged from the annular groove.” Weaver and Kouvelis, alone or in combination, fail to describe or suggest at least these

features of claim 1. In Weaver, axial movement of the sleeve member 42 (which the Office Action equates to the claimed collar) disengages ratchet face 46 from ratchet surface 40, but does not hold the balls 108 in engagement with the shank 82 or disengage balls from engagement with the shank 82. Similarly, Kouvelis fails to describe or suggest a collar that is moveable between a first position for holding a ball in engagement with an annular groove and a second position for disengaging the ball from the annular groove. Therefore, Weaver and Kouvelis fail to describe or suggest all of the claimed features of claim 1.

There also is no motivation to combine Weaver and Kouvelis to meet the limitations of claim 1, as suggested in the Office Action. The Office Action asserts that it would have been obvious to combine the Kouvelis teaching of a rotary tool with an annular groove with the device of Weaver, wherein the groove of Kouvelis would be engaged by the balls of Weaver. However, in Weaver, the balls are not configured to engage an annular groove of a shank of a tool. Rather, in Weaver, the balls 108 engage splines 112 to prevent over-torquing of spring 56. The Office Action provides no motivation or suggestion in the references for making this combination.

For at least the foregoing reasons, claim 1, and its dependent claims 2-4 and 6, are patentable over Weaver and Kouvelis.

Independent claim 9, and its dependent claims 10-11, are patentable over Weaver and Kouvelis. For the reasons discussed above with respect to claim 1, Weaver and Kouvelis, alone or in combination, fail to recite at least a “collar sliding axially between a first position and a second position, wherein when the collar is moved to the first position the collar is configured to hold the ball in engagement with the annular groove [of the shank],” as recited in claim 9. Also, for the reasons discussed above with respect to claim 1, there is no motivation to combine the teachings of Weaver and Kouvelis.

In addition, Weaver and Kouvelis, alone or in combination, fail to describe or suggest at least that the ball engages with the annular groove “to at least substantially prevent rotation of the shank within the bore when the chuck is rotated.” In Weaver, spring 56, not balls 108, prevent rotation of the shank when the chuck is rotated. In

Kouvelis, the square cross-section of shaft 32, not the ball 20 engaging groove 34, prevents rotation of the bit within the bore when the chuck is rotated.

For at least the foregoing reasons, claim 9, and its dependent claims 10-11, are patentable over Weaver and Kouvelis.

Independent claim 16 is patentable over Weaver and Kouvelis because Weaver and Kouvelis, alone or in combination, fail to recite at least a router bit “having a slot configured to be engaged by a first engagement portion of a bit holding assembly of a router,” as recited in claim 16. Weaver shows a tool with a circular shank, but with no slot. Kouvelis describes a drill bit 30 having a shaft 32 having a square cross-section, but with no slot. For at least these reasons, claim 16 is patentable over Weaver and Kouvelis.

35 U.S.C. §§ 103(a) Weaver/Kouvelis/Han Rejections

Claims 5, 8, 12, 13, 15, 20, and 22 have been rejected under 35 U.S.C. § 103(a) as being obvious over Weaver in view of Kouvelis and further in view of Han. Claims 20 and 22 have been cancelled, without prejudice. For at least the following reasons, Applicants respectfully request withdrawal of the rejections of claims 5, 8, 12, 13, and 15.

Claims 5, 8, 12, 13, and 15 depend from one of claims 1 and 9. For at least the reasons discussed above, claims 1 and 9 are patentable over Weaver and Kouvelis. Han fails to cure the deficiencies discussed above with respect to claims 1 and 9.

With respect to claims 1 and 9, Han fails to describe or suggest at least “the collar is moved to the first position for holding the ball in engagement with the annular groove and moved to the second position for allowing the ball to be disengaged from the annular groove.” Rather, in Han, the engagement member 87 (which the Office Action equates to the claimed ball) engages a side surface, not an annular groove, of the tool shank.

With respect to claim 9, as discussed above, Han also fails to describe at least a collar that is “configured to hold the ball in engagement with the annular groove [of the shank] to at least substantially prevent rotation of the shank within the bore when the chuck is rotated,” as recited in claim 9. Rather, in Han, the gripping element 87 (which the Office Action equates to the claimed ball) provides only enough “friction to hold the

tool within the chuck against the force of gravity and without rotation relative to the chuck when the tool is not under load.” (Han at col. 11, lines 12-14). Han uses a separate cam member to hold the tool in the chuck when the tool is being rotated. (Han at col. 12, lines 47-67).

For at least the foregoing reasons, claims 5, 8, 12, 13, and 15 are patentable over Weaver, Kouvelis, Han, or any combination thereof.

Allowable Subject Matter

Applicants acknowledge the indication of allowable subject matter in dependent claims 7, 14, and 24. Applicants reserve the right to present these claims as independent claims in future prosecution of this or subsequent applications. Applicants respectfully note that the statement of reasons for allowance is not necessarily exhaustive and that there may be additional reasons for allowance not discussed in the Office Action.

Conclusion

Applicants do not acquiesce to the characterizations of the art. For brevity and to advance prosecution, however, Applicants have not addressed all characterizations of the art, but reserve the right to do so in further prosecution of this or a subsequent application.

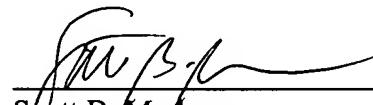
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Respectfully submitted,

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Version Marked to Show Changes

Title: Router Bit System
Inventor(s) Alan Phillips
Serial No.: 10/626,842
Filing Date: July 23, 2003

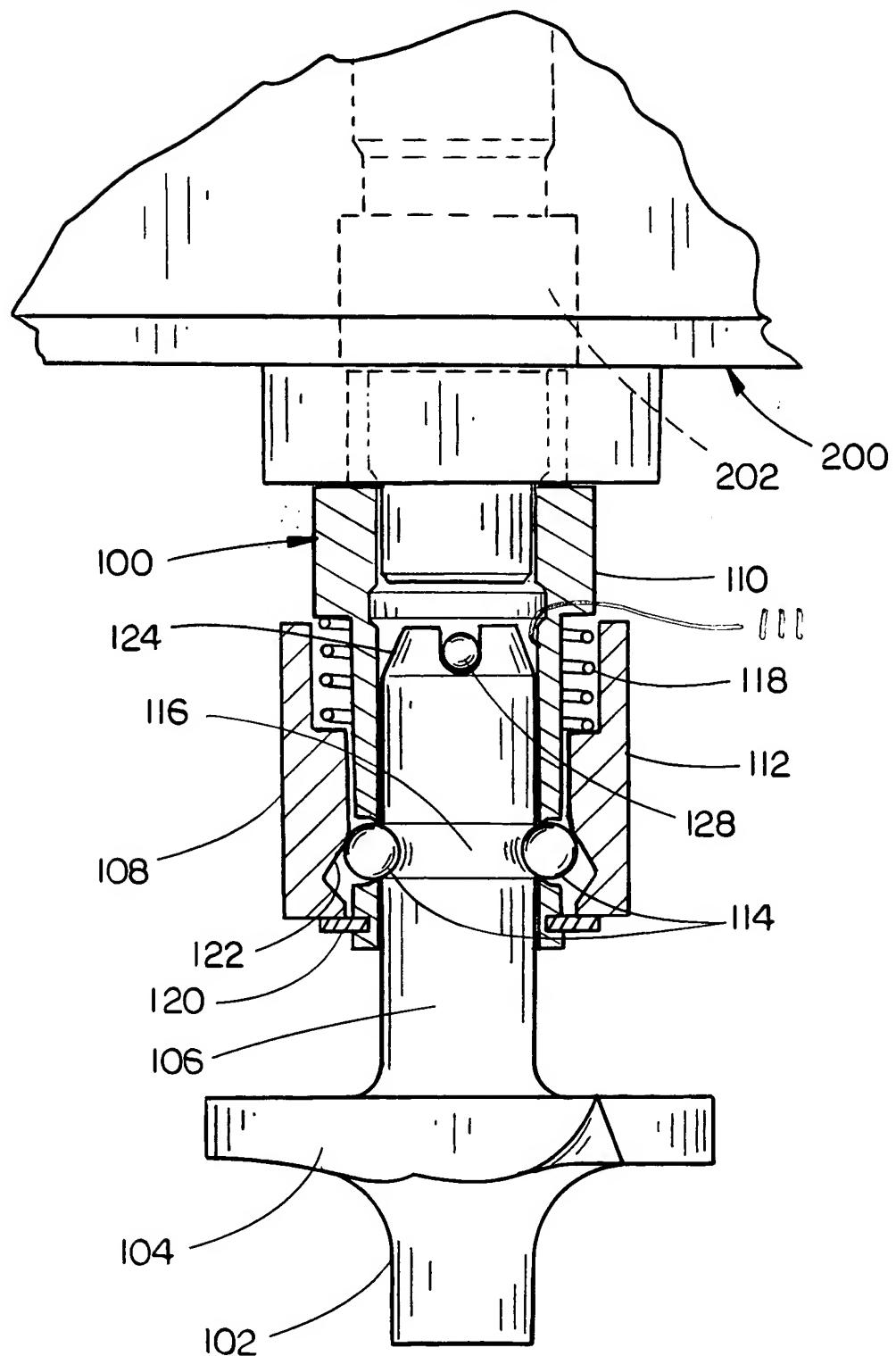


FIG. 2